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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WON, MICHAEL YOUNG

ART UNIT PAPER NUMBER

2155

DATE MAILED: 09/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/045,287

Applicant(s)

ROBINS ET AL.

Examiner

Michael Y. Won

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-18, 20-28 and 30-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-18, 20-28 and 30-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1, 11, and 21 have been amended and claims 9, 19, and 29 have been cancelled.
2. Claims 31-35 have been added.
3. Claims 1-8, 10-18, 20-28, and 30-35 have been examined and are pending with this action.

Claim Objections

4. Claims 10, 20, and 30 are objected to because of the following informalities:
Claims 10, 20, and 30 depend on cancelled claims 9, 19, and 29. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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5. Claims 31 and 32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. New claims 31 and 32 state, "assigning a credit... in a round robin sequential fashion". The examiner could not find support in the specification regarding round robin sequential fashion.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claims 31 and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-8, 11-18, and 21-28 are rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Demizu (US 6,195,355 B1).

INDEPENDENT:

As per **claim 1**, Demizu teaches a method of performing virtual network connection merge (see abstract), the method comprising: assembling at least one data unit from data traffic of at least one network connection in a plurality of connections (see Fig.6; col.1, lines 59-62; and col.3, lines 26-32); assigning a relative frequency value to each network connection, wherein a higher relative frequency value is assigned to a network connection requiring a higher relative bandwidth (implicit: see col.5, lines 53-57: "with respect to things such as usable bandwidth"); allocating credits to each network connection in proportion to relative frequency values of ready network connections of a same virtual network connection merge (inherent: see col.4, lines 63-64; col.5, lines 53-57; col.6, lines 8-10 & 33; and col.8, lines 57-60); determining a chosen data unit to be transmitted to an output channel, wherein the step of determining the chosen data unit depends on credit of the network connection (see col.2, lines 57-60; col.3, lines 33-37; and col.14, lines 29-42); and transmitting the chosen data unit to the output channel (see col.2, lines 55-57 and col.13, lines 36-37).

As per **claim 11**, Demizu teaches of an integrated circuit configured to perform a virtual network connection merge (see abstract), the integrated circuit comprising: controller circuitry configured to control operations of: assembling at least one data unit from data traffic of at least one network connection in a plurality of network connections

(see Fig.6; col.1, lines 59-62; and col.3, lines 26-32); assigning a relative frequency value to each network connection, wherein a higher relative frequency value is assigned to a network connection requiring a higher relative bandwidth (implicit: see col.5, lines 53-57: "with respect to things such as usable bandwidth"); allocating credits to each network connection in proportion to relative frequency values of ready network connections of a same virtual network connection merge (inherent: see col.4, lines 63-64; col.5, lines 53-57; col.6, lines 8-10 & 33; and col.8, lines 57-60); determining a chosen data unit to be transmitted to an output channel, wherein the step of determining the chosen data unit depends on credit of the network connection (see col.2, lines 57-60; col.3, lines 33-37; and col.14, lines 29-42); and transmitting the chosen data unit to the output channel (see col.2, lines 55-57 and col.13, lines 36-37).

As per **claim 21**, Demizu teaches a computer-readable medium carrying one or more sequences of one or more instructions for performing a virtual network connection merge (see abstract), the one or more sequences of one or more instructions including instructions which, when executed by one or more processors, cause the one or more processors to perform the steps of: assembling at least one data unit from data traffic of at least one network connection in a plurality of network connections (see Fig.6; col.1, lines 59-62; and col.3, lines 26-32); assigning a relative frequency value to each network connection, wherein a higher relative frequency value is assigned to a network connection requiring a higher relative bandwidth (implicit: see col.5, lines 53-57: "with respect to things such as usable bandwidth"); allocating credits to each network connection in proportion to relative frequency values of ready network connections of a

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same virtual network connection merge (inherent: see col.4, lines 63-64; col.5, lines 53-57; col.6, lines 8-10 & 33; and col.8, lines 57-60); determining a chosen data unit to be transmitted to an output channel, wherein the step of determining the chosen data unit depends on credit of the network connection (see col.2, lines 57-60; col.3, lines 33-37; and col.14, lines 29-42); and transmitting the chosen data unit to the output channel (see col.2, lines 55-57 and col.13, lines 36-37).

As per **claim 31**, Demizu teaches a method of performing a virtual network connection merge, the method comprising: assigning a relative frequency value to each network connection in a plurality of network connections (implicit: see col.5, lines 53-57) being represented in a first list (see Fig.17; Fig.21; and col.16, lines 50-53); assigning a credit to each network connection in the plurality of network connections in the first list (inherent: see col.4, lines 63-64; col.5, lines 53-57; col.6, lines 8-10 & 33; and col.8, lines 57-60) in a round robin sequential fashion; when a network connection is assigned credits *substantially* equal to its relative frequency value, removing the network connection from the first list (see col.16, lines 14-17); continuing to assign a credit to each network connection in the plurality of network connections in the first list in a round robin sequential fashion until the first list is empty, wherein when a network connection is assigned credits *substantially* equal to its relative frequency value, removing the network connection from the first list (repeating previous steps does not make invention novel: see previously cited reference locations); determining a chosen data unit to be transmitted to an output channel, wherein the step of determining the chosen data unit depends on credit of the network connection (see col.2, lines 57-60; col.3, lines 33-37;

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and col.14, lines 29-42); and transmitting the chosen data unit to the output channel (see col.2, lines 55-57 and col.13, lines 36-37).

DEPENDENT:

As per **claims 2, 12, and 22**, Demizu further teaches wherein the step of assembling at least one data unit comprises: allocating the data traffic of the at least one data unit into memory cells (see col.2, lines 36-39); adding the memory cells to cell descriptor (CD) lists until an end of frame (EOF) cell is received, wherein the end of frame cell is used to identify unit boundaries (see col.2, lines 39-41).

As per **claims 3, 13, and 23**, Demizu further teaches wherein the calculating step comprises calculating a higher credit for network connection having data that is ready for transmission (see col.14, line 34: "arrived"), wherein a ready data unit is a whole data unit with memory cells filled with data traffic (see col.14, lines 29-34).

As per **claims 4, 14, and 24**, Demizu further teaches wherein the step of transmitting the chosen data unit comprises: allocating merge bandwidth for the chosen data unit (implicit: see col.5, lines 53-57); adding memory cells of the chosen data unit to transmit lists (see Fig.19; col.18, lines 15-21 & 37-56); and transmitting the memory cells of the chosen data unit to the output channel based on information in the transmit lists, wherein the memory cells of the chosen data unit are transmitted until an end of frame cell of the chosen data unit is transmitted (see claim 2 rejection above and col.18, lines 65-67).

As per **claims 5, 15, and 25**, Demizu teaches of further comprising: determining another chosen data unit to be transmitted the output channel; and transmitting the other chosen data unit to the output channel (see col.16, lines 10-23: "repeat").

As per **claims 6, 16, and 26**, Demizu teaches of further comprising performing steps of the method until all data units with sufficient credit have been transmitted (see Fig.13; Fig.16; Fig.19; and col.16, lines 10-23).

As per **claims 7, 17, and 27**, Demizu further teaches wherein the least one network connection includes Asynchronous Transfer Mode (ATM) connections (see Fig.2 and col.8, lines 32-40).

As per **claims 8, 18, and 28**, Demizu teaches of further comprising: assigning a bandwidth guarantee to each network connection (see col.4, lines 63-64 and col.6, lines 33); receiving an overload traffic from a network connection having a relatively low bandwidth guarantee (implicit: col.5, lines 53-57 and see col.10, lines 7-10); and storing the overload of traffic into at least one stored data unit (see col.2, lines 36-41).

As per **claim 32**, Demizu teaches of further comprising moving the network connection from the first list to a second list, wherein when the first list is empty, moving the network connections back to the first list (see col.17, lines 37-40), the method further comprising: continuing to assign a credit to each network connection in the plurality of network connections in the first list (repeating previous steps does not make invention novel: see previously cited reference locations of claim 31) in a round robin sequential fashion until the first list is empty, wherein when a network connection is assigned credits *substantially* equal to its relative frequency value, removing the

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network connection from the first list (repeating previous steps does not make invention novel: see previously cited reference locations of claim 31).

As per **claims 33-35**, Demizu further teaches wherein allocating credits to each network connection comprises: assigning a credit to each network connection in the plurality of network connections in a list (inherent: see col.4, lines 63-64; col.5, lines 53-57; col.6, lines 8-10 & 33; and col.8, lines 57-60); when a network connection is assigned credits equal to its relative frequency value, removing the network connection from the list (see col.16, lines 14-17); and continuing to assign a credit to each network connections in the plurality of network connections in the first list until the list is empty, wherein when a network connection is assigned credits equal to its relative frequency value, the network connection is removed from the first list (repeating previous steps does not make invention novel: see previously cited reference locations).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 10, 20, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Demizu (US 6,195,355 B1) in view of Radhakrishanan et al. (US 6,049,526 A).

As per **claims 10, 20, and 30**, Demizu does not explicitly teach wherein the determining step comprises: generating a particular bandwidth shape token for the virtual network connection merge; and receiving a bandwidth shape token configured to assist in identifying the chosen data unit. Radhakrishanan teach of generating a particular bandwidth shape token for the virtual network connection merge (see col.6, lines 39-41); and receiving a bandwidth shape token configured to assist in identifying the chosen data unit (see col.9, lines 45-60). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ the teachings of Radhakrishanan within the system of Demizu be implementing generating a particular bandwidth shape token and receiving such for assisting in identifying the chosen data unit within the method of performing virtual network connection merge by a program or integrated circuit because Radhakrishanan teaches that such an implementation is employed to guarantee scheduling of different VC (virtual channel) cells (of different rates) and also "avoids and/or reduces cell clumping buffer overflows".

Response to Arguments

9. The examiner agrees with the assertion that Demizu teaches priority is given to those connections having a large number of VC's to be merged, however Demizu also teaches priority is given based on guaranteed QoS (see rejection above). Because Demizu teaches of QoS, it is inherent that the QoS of each connection is allocated ("allocating credits to each network connection") to the ATM switch such that the switch

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will properly direct the packet according to the QoS of the connection. Therefore after further consideration and additional reference locations cited, the rejection is respectfully maintained. Applicants' arguments with respect to claim 1 have been fully considered but are deemed to be moot.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

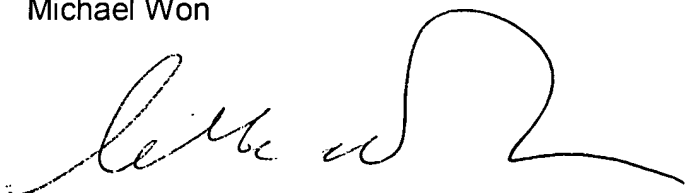
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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Y. Won whose telephone number is 571-272-3993. The examiner can normally be reached on M-Th: 7AM-5PM.

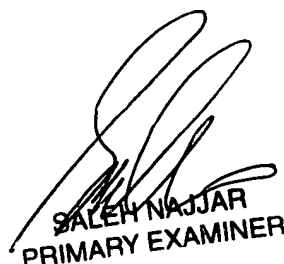
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Won



September 7, 2005



SALEH NAJJAR
PRIMARY EXAMINER